CNG Vehicles Refueling Appliance

Mod. FMQ 2 P30 & P36 - FMQ 2.5 P30

CE 0497

User's Manual

STAMP OF AUTHORIZED TECHNICAL SERVICE

BRC - FuelMaker - M.T.M. S.r.l. U.
Via Industria, 6 - 12062 - Cherasco - CN - ITALY
International Technical Assistance
Tel. +39.0172.48.68.628 0172.48.68.363 - 0172.48.68.623.- Fax +39.0172.486.630
e-mail: compressorservice@brc.it - www.brcfuelmaker.it
North America – Canada Technical Assistance
Tel. +1.705.341.19.23
e-mail: d.stubbings@brc.it

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1. SAFETY INSTRUCTIONS

- **READ CAREFULLY BEFORE INSTALLATION**

Please read carefully the VRA and its additional components handbook before installation and use. In case of doubts or problems during installation, please contact BRC FuelMaker Technical Support.

- **LOCATION OF Vehicle Refueling Appliance (VRA)**

VRA should only be installed outdoors and in safe areas.
Do not install it under or next to a window or protuberance that can cause gas accumulation. Leaves, snow or other material should not obstruct air inlets. VRA and vehicle gas cylinder should be at the same ambient temperature during refueling operation.

- **REFUELING APPLIANCE FOR CNG (Compressed Natural Gas) VEHICLES ONLY**

Do not use VRA for any other purpose or it may results in serious injury or even death to people and serious damages to structures. Vehicle gas cylinder should be certified for storing CNG at a 250 Bar pressure or higher. VRA is suitable for residential or commercial applications, always complying with Competent Authority requirements.

- **REFUELING INSTRUCTIONS**

Park your vehicle, switch it off and apply hand brake. Do not refuel with engine on and be sure that any possible priming source is absent. Do not smoke or use naked flames during refueling. People or animals should not stay into the vehicle during refueling.

- **IF YOU SMELL GAS**

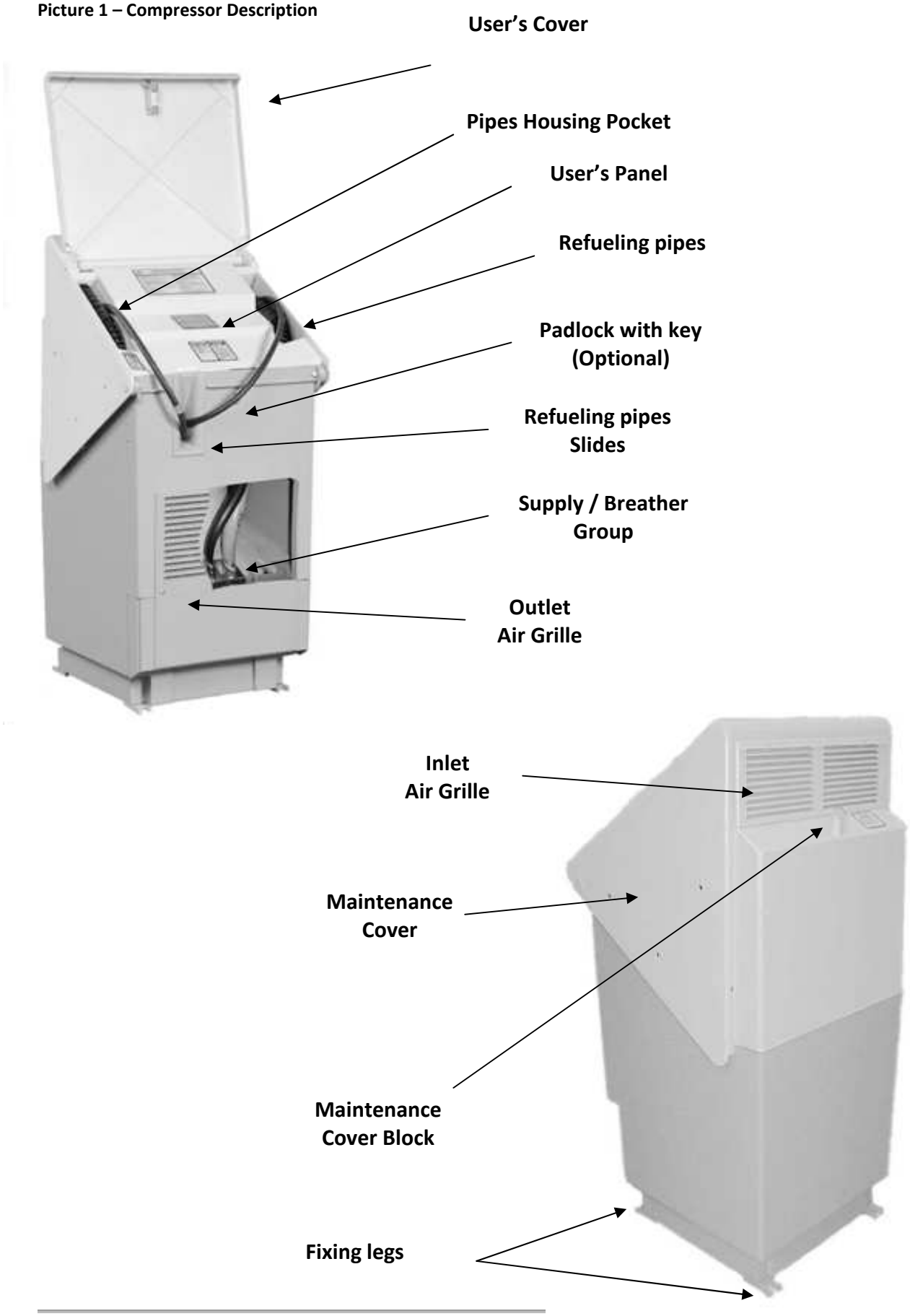
Close immediately the manual valve on CNG supply line and, if possible, the vehicle cylinder one too. Switch off any possible priming source and contact the Authorized Technical Center.

- **REFUELING PIPE**

Refueling flex pipe should be protected from damage and abrasion. After refueling your car, be careful to arrange it so that it cannot be trampled. In case of pipe or connector abrasions or wear, contact the Authorized Technical Center for its overhauling/replacement.

WARNING: DO NOT USE SOLVENT OR AGGRESSIVE CHEMICAL AGENTS FOR CLEANING THE OUTSIDE. USE DETERGENTS OR DOMESTIC GENTLE SOAP.

Picture 1 – Compressor Description



2. INTRODUCTION

Model FMQ 2 P30 and FMQ 2.5 P30 have been developed for compressing Natural Gas for Automotive use and being used outdoors with no lubricant oil.
The following versions are available:
Direct Refueling - Directly connecting One or Two refueling pipes to the unit;
Remote Refueling - Using one or more Remote Control or Auxiliary (Optional) Panels and connecting one or two refueling pipes to each panel;
Fast Refueling - Using a Storage System (Optional) with Remote Control, Auxiliary or Priority Panel (Op)

FMQ is equipped with a temperature automatic compensation system and stops when the maximum filling pressure determined by the ambient temperature detected by sensor situated into the air inlet is achieved.

VRAs are air-cooled and operating temperature range is -40° C +45° C.
Ventilation system is based on a fan situated in the inside lower part: the air enters from the rear side grille and exits from the front side one (see pict. 2). The covering has some pivots allowing easy access to the unit modules and to the quick-disconnect device of refueling pipes (see pict. 4).
User's Panel controls VRA Start, Stop and monitoring (see pict. 5).

NOTE: Appliances equipped with Automatic Restart System (Optional) have AGA certification for commercial and industrial use for USA only.

3. TECHNICAL SPECIFICATIONS

GAS CIRCUIT	FMQ 2 P30	FMQ 2.5 P30	FMQ 2 P36
Max Filling Pressure	207 bar (3000 psig) at 20° C ambient	207 bar (3000 psig) at 20° C ambient	**248 bar (3600 psig) at 20° C ambient**
Min Inlet Pressure	0.017 bar (7" w.c.)	0.017 bar (7" w.c.)	**0.017 bar (7" w.c.)**
Max Inlet Pressure	0.035 bar (14" w.c.)	0.035 bar (14" w.c.)	**0.035 bar (14" w.c.)**
Nominal Flow	2.2 sm^3/h at 21°C - 0.017 bar inlet	2.8 sm^3/h at 21°C - 0.017 bar inlet	**2,2 sm^3/h at 21°C - 0.017 bar inlet**
WIRING CIRCUIT			
Electrical Supply	220 Volt AC Monophase, 50/60 Hz	220 Volt AC, Monophase, 50/60 Hz	**220 Volt AC, Monophase, 50/60 Hz**
Wiring Circuit Capacity	15 Amp	15 Amp	**15 Amp**
Full Load Amperes	6.5 Amp	7.3 Amp	**7.0 Amp**
Average Consumption	0.9 kWh	1.2 kWh	**1.4 kWh**
MECHANICS			
Dimensions (L x P x A)	**540 x 500 x 990 mm**	**540 x 500 x 990 mm**	**540 x 500 x 990 mm**
Weight	**66 Kg**	**66 Kg**	**66 Kg**
Noise	**49 dBa at 5 mt.**	**49 dBa at 5 mt.**	**49 dBa at 5 mt.**
Operating Temperature	**From - 40° C to + 45° C**	**From - 40° C to + 45° C**	**From - 40° C to + 45° C**

Tabella 1- Technical Specifications

4. GENERAL INFORMATION

- Vehicle Refueling Point
While installing VRA, consider that it should be installed next to the vehicle to refuel because of the automatic compensation system between outlet and ambient temperature pressures; always consider that refueling pipe length can be of 3 mt., 4,5 mt. or 7,5 mt. and remember that sum of the two pipes connected to a same appliance should not pass the total length of 9 mt. Moreover, refueling or outlet pipe should not obstruct pedestrian crossing or passages.

- Automatic Restart System
VRAs equipped with "Automatic Restart System" *(Optional)* will automatically go on with refueling operation when outlet pressure will be lower than the unchangeable one set up by the builder. All VRAs are equipped with an automatic temperature compensation system; they will automatically stop when the max pressure is achieved, defined by ambient temperature detected by sensors installed on VRA itself (see table 3). If VRA is connected to a storage system, the system will check the outlet pressure line and restart compressor in case of pressure fall (value set up through the software).

- Protection against Bumps
VRA should not be placed at the risk of collision with vehicle. VRA should be protected by a steady structure; if not present, you can use a structure fixed for 1 mt. into the floor. Always make reference to local laws in force.

- **Refueling Pipes Length**
Expansion tank has been planned to contain gas volume of refueling fitting and pipe that, in the presence of two pipes connected, cannot pass the total length of mt. 9, assuring so a max internal pressure of 3 barg. In case of a bigger volume, a safety valve situated inside the expansion tank will open discharging so the overpressure. Max internal gas volume of refueling fittings should not exceed 5 cc^3. If Remote Control or Auxiliary Panels are present, please make reference to installation handbook to check the pipes max length allowed.

NOTE Measured mentioned before should be respected to avoid the expansion tank overpressure and the internal safety valve opening every time compressor stops.

- Discharge system
Breather line allows discharging possible system overpressures; this is the reason why it is very important keep it free from dirt, material or ice.

System is set up for the direct refueling, that's to say that software constantly controls refueling pipe pressure increase in order to find possible leakages due to anomalies (e.g. refueling pipe broken, faulty refuelling point or fitting). VRA considers a"leakage" when pressure does not increase of a defined value. Software calculates this value through an algorithm. System is set up for a max filling volume of 280 lt. If possible, we suggest to decrease this parameter to 140 lt. Regularly you never exceed 280 lt; only if strictly necessary, or if VRA is connected to a storage system bigger than 280 lt., Monitoring of Pressure Increase parameter should be modified to OFF. In this case, eventual leakages from outlet pipe will not be controlled.

Pressione di Arresto Vs. Temperatura Ambiente	Temperatura ambiente
207 ± 7.0 bar	**21° C o superiore**
183 ± 7.5 bar	**10° C**
166 ± 8.0 bar	**0° C**
150 ± 8.5 bar	**- 10° C**
133 ± 9.0 bar	**- 20° C**
116 ± 9.5 bar	**- 30° C**
100 ± 10.0 bar	**- 40° C**

Tabella 2 – Pressure stop Mod. P30

Pressione di arresto	Temperatura ambiente
248 ± 7.0 bar	**15° C o superiore**
232 ± 7.5 bar	**10° C**
210 ± 8.0 bar	**0° C**
188 ± 8.5 bar	**- 10° C**
165 ± 9.0 bar	**- 20° C**
143 ± 9.5 bar	**- 30° C**
121 ± 10.0 bar	**- 40° C**

Tabella 3 – Pressure Stop Mod. P36

Impostazioni di Fabbrica	
Monitoraggio Incremento di Pressione	**SI**
Volume Massimo Riempimento (Lt.)	**280**
Porta Elemento Ausiliare	**NO**

Tabella 4 – Standard Set

5. USER'S CONTROL PANEL

User's Control Panel can be reached through the User's Cover.

Panel has two buttons, START and STOP, and three LEDs, Yellow, Green and Red indicating many different situations. See following pages for VRA Error or Condition Codes.

Picture 2 – User panel

6. OPERATING INSTRUCTIONS

Tabella 5 – Operating Instructions

	1) With engine off, check the absence of danger, connect Refueling Pipe to the vehicle refueling point and verify the good connection by pull it slightly.
	2) Push the START button. VRA will start working.
	3) If compressor stopped automatically go to the next step; if you need to stop refueling, press the STOP button.
	4) Disconnect Refueling Pipe from vehicle and arrange it into the suitable lateral pocket under the upper cover.

CHECK THE RIGHT WORKING OF USER'S CONTROL PANEL INDICATORS (Only with VRA in stand-by)

Keep the STOP button pressed for a while in order to check the right user's control panel LEDs working. LEDs will sparkle for roughly 1 second before they turn off.

Table 6 –Indication of regular working on user's panel (Normal mode)

INDICATION	DESCRIPTION
No light	**- Ready to start** - **Electrical Supply Missing** - **Replace Fuses** **Note:** If electrical supply fails for less than 15 sec., VRA will restart automatically when it will be back.
Fixed Yellow Light	**- Refueling ended** Vehicle tank has been fully filled up at the max pressure allowed, you can disconnect it from the refueling pipe. VRA restarts by pushing the START button.
Fixed Green Light	**- Refueling** VRA is filling up the vehicle.

Table 7 – Indication on anomalies on user's panel (Anomalies mode)

INDICATION	DESCRIPTION
Blinking Yellow Light	**- Electrical Supply Missing** During refueling, electrical supply failed for more than 15 sec. Push the START button to restart VRA.
Blinking Green Light	**- Anomaly** VRA stopped in an anomalous way. Most common reasons of the Anomaly are: - Connection to the vehicle is faulty or damaged. - Inlet pipe Manual Valve is closed. - Air inlets are obstructed. - Refueling pipe is faulty (e.g. leakage). - Max refueling time has been passed (25 hours non-stop). VRA can be restarted regularly if error has been reset.
WARNING: Cylinder/s with a capacity of more than 140 lt. may need more than 25 hours to refuel in some special conditions (e.g. high ambient temperature, next compressor scheduled maintenance intervention, etc.). In this case VRA will stop for Anomaly because it will consider the max refueling time passed as a gas leakage. If after inspection VRA working is regular, you can restart compressor.	

Table 8 – Indication on anomalies on user's panel (Error mode)

INDICATION	DESCRIPTION
Blinking Red Light	**- Call Technical Assistance** Automatic safety device found and error that can be dangerous and stopped the system with no possibility to restart. You need to call technical service for authorized personnel intervention.
Blinking Yellow, Green and Red Light (at the same time)	**- Failure or Hour meter Missing** Automatic safety device stopped the system because of failure or Hour meter missing.
Blinking Yellow, Green and Red Light (sequentially)	**- Automatic Block System** Automatic safety device blocks VRA for 15 sec. and stops it from restarting. After 15 sec you can regularly restart VRA.

7. DIAGNOSTICS

VRA is equipped with an Anomaly Detection Software, both in ERROR (Blinking Green LED) and in SUPPORT REQUEST (Blinking Red LED) mode).

The following tables show error codes and possible corrective actions.

Numbers 0 - 1 - 2, correspond to the following conditions.

0 = Indicator Off **1** = Indicator Fixed **2** = Indicator Blinking

Keep the STOP button pressed to identify the reason for ERROR or SUPPORT REQUEST.
LEDs will sparkle just like a working control, then hours code will appear.

Table 9 - "Anomalies mode Diagnostic" (Green Light Blinking)

ERROR CODE	DESCRIPTION	CORRECTIVE ACTION
0 **0** **0**	Failure of supply, Electronic Module error or error loss.	Check LEDs working by keeping the STOP button pressed. LEDs should light on and sparkle. If OK, try to restart VRA. If error persists, contact authorized support centre.
0 **0** **1**	Excessive Engine Temperature	Check that air grilles are free. If OK, try to restart VRA. If error persists, contact authorized support centre.
0 **1** **0**	Inadequate increase of refueling pressure at the beginning of filling cycle and lower than 20 barg (290 psig) 7 minutes if set up to 280 lt. (74 US US gal.)	Check the right connection between refueling fitting and vehicle. If OK, check that total volume of tank is not bigger than 140 lt. (37 US gal.). VRA max volume setting could be changed, so technical service intervention is necessary. If OK, check possible leakages from refuelling pipe. If no leakages are detected, try to restart VRA. If error persists, contact authorized support centre.

Table 9 - "ERROR" MODE DIAGNOSTICS (Green Light Blinking) (Continue)

ERROR CODE	DESCRIPTION	CORRECTIVE ACTION
0 1 1	Pressure Drop (over 20 barg. (290psig)) in High Pressure system.	Check possible leakages from refuelling pipe. If OK, start VRA without connecting refueling fitting. Wait for VRA automatic stopping. If VRA works for more than 1 minute without refueling fitting connection, contact authorized support centre.
	Error code 011 can appear even in the following cases: - If you connect a second vehicle while VRA is working or if one of the two vehicles connected to the unit presents some problems to the non-return valve (valve blocked). - In case of ice into the refueling pipe that could obstruct non-return valves. Low temperatures and wet gas composition can contribute to create ice.	
0 2 1	Auxiliary Component Block. (External Interlock)	Check connectors and cables of auxiliary component, if installed (E.g. External Gas Sensor). If error persists, contact authorized support centre.
1 0 0	Ambient temperature too high or too low, or temperature sensor error .	If the cause has been the ambient temperature lower than -45° C or higher than +45° C, try to restart VRA. If error persists, contact authorized support centre.
1 0 1	Inadequate inlet pressure.	Check that inlet manual valve is open. If error persists, contact authorized support centre.
1 0 2	Excessive internal temperature or temperature sensor error while VRA is refueling.	Check that air inlets (the front and the rear one) are clean and free from material obstructing them. If error persists, contact authorized support centre.
1 1 0	STOP button sequence error	Try to push the Stop button again and to restart VRA. If error persists, contact authorized support centre.

Table 9 - "ERROR" MODE DIAGNOSTICS (Green Light Blinking) (Continue)

ERROR CODE	DESCRIPTION	CORRECTIVE ACTION
1 1 1	Electronic error.	Try to push the Stop button again and to restart VRA . If error persists, contact authorized support centre.
1 1 1	Electronic error.	Try to push the Stop button again and to restart VRA . If error persists, contact authorized support centre.
1 1 2	Working hours record missing during the last failure of electric supply.	Try to disconnect electric supply for 1 minute and connect it again. Try to restart VRA. If error persists, contact authorized support centre.
1 2 0	Engine Control Error.	Try to disconnect electric supply for 1 minute and connect it again. Try to restart VRA. If error persists, contact authorized support centre.
1 2 1	Excessive increase of pressure during refueling operation.	Check the good connection between vehicle and refueling fitting, the absence of narrowing and try to restart VRA. If error persists, contact authorized support centre.
1 2 2	Max refueling time passed (more than 25 hours)	Check that total volume of tank is not bigger than 140 lt. (37 US gal.). VRA max volume setting could be changed, so technical service intervention is necessary. If tank volume is ok, check possible leakages. In case of leakages, contact authorized support centre. If there are no leakages, restart VRA. If error persists, contact authorized support centre.

Table 9 - "ERROR" MODE DIAGNOSTICS (Green Light Blinking) (Continue)

ERROR CODE	DESCRIPTION	CORRECTIVE ACTION
2 **0** **0**	Electric supply Failure.	Restart VRA.
2 **0** **1**	Expansion Tank Overpressure	If disconnecting fitting from vehicle results difficult, close the valve between tank and engine; switch the engine on and wait for its stopping. Open valve again and restart: push the Stop button. If error persists, contact authorized support centre.
2 **1** **0**	Inadequate Pressure Increase after 6 minutes of working or with tank pressure bigger than 20 barg (290 psig) 14 minutes with tank volume settingh at 280 lt. (74 US gal.).	Check possible leakages on refueling pipe or fitting. If there are no leakages, close gas supply valve and start VRA. Unit should stop in roughly 1 min. showing the error code 101. If OK, open supply valve again and restart VRA. If error persists, contact authorized support centre.
2 **2** **0**	Hour Meter Error	Restart VRA. If error persists, contact authorized support centre.

“SUPPORT REQUEST” MODE DIAGNOSTICS (Red Light Blinking)

Keep the STOP button pressed. LEDs will blink first at the same time, then they will light on showing one of the error codes of the following table.
VRA can record up to 5 errors; you can see them by keeping the STOP button pressed and pressing then the START one, until the code 222 will appear (end of error archive). Corrective actions for this kind of error can only be carried out by authorized personnel.

Table 1010 - “ERROR” MODE DIAGNOSTICS (Green Light Blinking) (Continue)

ERROR CODE	DESCRIPTION	CORRECTIVE ACTION
0 **1** **2**	Expansion Tank Overpressure.	Contact authorized support centre.
0 **2** **0**	High Pressure Transductor error.	Contact authorized support centre.
1 **2** **0**	Engine Module Error.	Contact authorized support centre.
2 **2** **0**	Hour Meter Error	Contact authorized support centre.
2 **2** **2**	End of Error Archive	No action required

8. MAINTENANCE INSTRUCTIONS

INTRODUCTION TO MAINTENANCE

Final user or unauthorized personnel should not access internal components for safety reasons. VRA should only kept maintained by authorized personnel suitably trained by BRC FuelMaker.

Before contacting Technical Support Centre, User should always verify error code on User's Panel and possess installation documents.

WARNING:
Any other operation not described in this manual should only be carried out by BRC-FuelMaker at its premises. Any intervention realized by UNAUTHORIZED personnel will invalidate the warranty and cause damages to the compressor and serious injury or even death to people.

- Ordinary Maintenance Inspection

Periodically
- check that outlet pressure corresponds to parameters indicated by suitable table;
- check that refueling pipe does not show abrasions, cutting or swelling; if necessary, call technical service to replace it. Check that vehicle connector seal (O.R) does not show damages or cutting.
- check that breather system and front/rear air inlets are free from dirt, material or ice.

Special technical service for the following modules should only be carried out by BRC-FuelMaker at its premises.

- Compressor Module (CPQ)

- Control Module (CUQ)

- Electronic Circuit Board (EMQ)

- Fan

Attempt to tamper with or open modules can cause damages to infrastructures, serious injury or even death to people, and obviously invalidate the warranty.

For further information, please feel free to contact Technical Service.

9. VRA REMOVAL

If you need to remove the whole unit, follow these instructions:

- Check that Electric Supply button is OFF and gas inlet valve closed.
- Check the absence of voltage on electric supply cable and disconnect it
- Disconnect Inlet and Discharge pipe from VRA verifying the absence of overpressures; close fittings.
- Pack VRA with its original packaging.

For further information, please feel free to contact Technical Service.

10. DISPOSAL

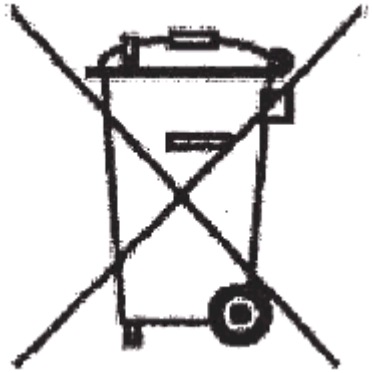
RIGHT DISPOSAL

At the end of the VRA's life, it should be removed and disposed according to installation Country laws in force.

A suitable separate collection for the following recycle and environmental disposal helps to avoid possible negative effects on environment and health and favours re-use and/or recycle of VRA materials.

DO NOT DISPOSE COMPRESSOR TOGETHER WITH DOMESTIC WASTE

PHILL CONTAINS MATERIAL ABSORBING MERCAPTAN FROM NATURAL GAS DURING REFUELING OPERATIONS



Waste from Electrical and Electronic Equipment (WEEE) (Valid for European Union and other European Countries with waste separate collection systems)

This symbol on VRA or on its documents means that product should be disposed at the end of its life according to directive 2002/96/CE about waste from Electrical and Electronic Equipment (WEEE) and implementation in national law.
VRA should not be disposed as urban waste but rather be delivered to the suitable collection point for electrical and electronic equipment.
Phill contains material absorbing mercaptan from natural gas durint refueling operations.
In case of wrong VRA disposal, you will be responsible for it in accordance with laws in force.
For further information about disposal and recycle of VRA please contact authorised offices or call **BRC FuelMaker.**

11. INSTALLATION DETAILS

Authorized Retailer _____

Installer _____

Telephone Number_____

Date of Installation _____

FMQ Serial Number _____

CONFIGURATION

Inlet Pressure	**mBar** _____			
Pressure Reducer	**YES**	☐	**NO**	☐
Max Filling Capacity	**140 Lt.**	☐	**280 Lt.**	☐
Pressure Increase Monitoring	**YES**	☐	**NO**	☐
Auxiliary Element Port Enabled	**YES**	☐	**NO**	☐

Auxiliary Element *(Gas Sensor, Remote Panel, Other)*
_____

_____

Anti-tearing Disconnection Device	**1**	☐	**2**	☐	**Adapt.**	☐
Storing	**NO**	☐				
	YES	☐	**Lt.** _____			

Date of Start _____ Installer's Signature_____

WARRANTY CERTIFICATE

WARRANTY CONDITIONS

M.T.M. Srl guarantees products for 24 months starting from the date of purchasing, within the limit of 2,000 working hours.
Purchasing should be proved by a fiscally valid receipt issued by the seller (fiscal ticket, invoice or transportation bill) identifying the product, the date of purchasing and/or delivery.
During the whole warranty period M.T.M. Srl engages itself to:
(a) restore faulty products assuming all burdens of expenses concerning spare parts and transportation
(b) replace faulty products not usefully repairable (e.g. when repair will cost more than replacement).

GENERAL CONDITIONS

In order to benefit from warranty, the user will contact the seller and/or installer that will repair the machine having ascertained the working defect.

If seller and/or installer cannot solve the problem, the machine will be forwarded to BRC FuelMaker that will repair it or replace it with a new one at its own discretion.
The machine will be returned to BRC FuelMaker in its original packaging; lack of this packaging will automatically cause the warranty forfeiture.

Warranty will be acknowledged only if the purchasing receipt will be sent by fax or mail at the moment of the intervention request:

BRC FuelMaker – Warranty Dept

Fax: 0172.486.630
E.mail: Compressorservice@brc.it

This warranty will not cover:

a) Fair wear and tear
b) Damages deliberately caused or due to negligence
c) Damages caused by inobservance of working instruction or by a wrong installation
d) Damages on non-functioning components that do not jeopardize the regular machine work, scratches and difference in colours included
e) Accidental damages caused by foreign body or substance, especially included the non-standard composition of the gas supplied to the machine (gas quality).
f) Repairs carried out by unauthorized assistance centres or repairs realized with non original spare parts
g) Damages caused by transportation

For further information or in case of need please call Toll Free Number 800 128 821

12. CE Conformity declaration

BRC FuelMaker
M.T.M. S.r.l.
Via La Morra n°1
12062 Cherasco (CN) _ Italy

Tel. +39 017248681
Fax. +39 0172593113

CE DECLARATION OF CONFORMITY

DICHIARAZIONE DI CONFORMITA'

Application of Council Directives: *Direttive comunitarie applicate*	2006/42/CE - Machinery Directive 2006/95/CE - Low Voltage Equipment 2004/108/CE - The EMC Directive 97/23/CE - PED Directive

Notified body charged of the conformity assessment:
CSI S.p.A. – V.le Lombardia, 20 – 20021 BOLLATE (MI) – N.Id. 0497
Terms of CE certificate according to B procedure: PED/0497/1863/10 _ PED/0497/1864/10_ PED/0497/1929/11
Terms of CE certificate according to D procedure: PED/0497/1866/10_ PED/0497/1931/11

Manufacturer's Name: *Costruttore*	MTM S.r.l. Società Unipersonale
Manufacturer's Address: *Indirizzo del costruttore*	Via La Morra n°1 12062 Cherasco Cn, Italia
Equipment Type: *Tipologia apparecchiatura*	Vehicle Refuelling Appliance *Apparecchio di erogazione di Gas Naturale per autotrazione.*
Trade Name Model No(s) *Modello*	FMQ-2-36; FMQ-2; FMQ-2.5
Trade Mark: *Marchio*	BRC FuelMaker

Standard(s) to which Conformity is Declared:
Normative applicabili a cui si dichiara la conformità:

EN 12100 Part 1: 2005	Safety of machinery - Basic concepts, general principles for design Part 1 Basic terminology, methodology.
EN 12100 Part 2: 2005	Safety of Machinery Part 2 Technical principles and specifications.
EN 13857: 2008	Safety of Machinery- Safety distances to prevent danger zones being reached by the upper limbs
CEI 44-5: 2001	Safety of Machinery - Electrical Equipment of Machinery -Part 1 : General Requirement
EN 50081-2:1993	Generic Emission for Industrial Environment
EN 55011:1998	Class A Limits and Methods of Measurement of +A1:1999 Electromagnetic (Radio) Disturbance.
EN 55014-1:2000	Conducted Discontinuous Disturbance Emission Limits Per Emission limits for electrical motor-operated and thermal appliance for household and similar purposes, electrical tools and similar apparatus.
EN 61000-3-2:2000	Limits for Harmonic Current Emissions (equipment input current up to and including 16 A per phase)
EN 61000-3-3:1995	Limits of Voltage Fluctuations and Flicker in Low Voltage +A1:2001 Supply Systems for Equipment with Rated Current <=16A
DM 30/04/2012	Apparecchi ad uso privato di gas naturale per autotrazione

We, hereby declare that the BRC FuelMaker Vehicle Refuelling Appliance conforms to the following directives:
Si dichiara inoltre che il VRA della BRC-FuelMaker soddisfa le seguenti normative:

STANDARDS	DESCRIPTION	SEVERITY APPLIED	PERFORMANCE CRITERIA
EN 61000-4-2: 1995, +A1:1998 +A2:2001	Electrostatic Discharge	8 kV air discharge; 4 kV contact discharge	A
EN 61000-4-4: 1995, +A1 2001	Electrical Fast Transients/Burst Immunity	± 2 kV on AC mains	A
EN 61000-4-5: 1995, +A1 2001	Surge Immunity	± 1 kV line to line ± 2 kV line to earth	A
EN 61000-4-6: 1996	RF Conducted Immunity	10 V, 0.15-80 Mhz, 80% AM modulation (1 kHz)	A
EN 61000-4-11: 1994	Voltage Dips, Short interruption and Voltage Variation Immunity	30%, 0.5 cycles 60%, 5 cycles >95%, 5%., +- polarity	B C C

Mariano Costamagna
The Legal Representative
Il Legale Rappresentante

M.T.M. s.r.l. Società Unipersonale IL PRESIDENTE Costamagna Mariano

Date 04 / 12 / 2012
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